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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/722,174 | 11/25/2003 | MacKenzie King | ATMI-688 | 7009 |
| 25559 | 7590 | 09/15/2006 | EXAMINER | |
| ATMI, INC. 7 COMMERCE DRIVE DANBURY, CT 06810 | | | SMITH, NICHOLAS A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1742 | |
| DATE MAILED: 09/15/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,174

Applicant(s)

KING ET AL.

Examiner

Nicholas A. Smith

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/21/2005
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of invention II in the reply filed on 7/7/2006 is acknowledged. The traversal is on the ground(s) that the apparatus is specific to copper electrochemical deposition and is specific to a wafer. This is not found persuasive because claim 14 states "apparatus for controlling copper electrochemical deposition" and "in which a wafer is contacted" (claim 14, lines 1-2). These are statements of intended use. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). See MPEP 2114.

2. The requirement is still deemed proper and is therefore made FINAL.

Status of Claims

3. Claims 14-30 remain for examination. Claims 31-34 are new. Claims 1-13 are withdrawn from consideration as not directed to the elected invention II.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 14-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (US Patent 6,458,262) in view of Etherington (US Patent 6,231,743).

6. In regards to claim 14, Reid discloses an electrochemical deposition apparatus, a computation module constructed and arranged to perform a regression analysis, solving dependent variable equations and a control assembly capable of modulating copper electrochemical deposition (Figs. 2, 3 and 5, col. 2, line 45 to col. 3, line 60).

7. However, while Reid is configured with a computation module capable of performing a regression analysis, Reid does not specifically teach utilizing a wafer-based independent variable.

8. Etherington teaches a computation module capable of performing a regression analysis utilizing a wafer-based independent variable (col. 2, lines 16-34). It would have been obvious to modify Reid's apparatus with Etherington's computation module capable of performing a regression analysis utilizing a wafer-based independent variable in order to control current flow, control film thickness and film uniformity (Etherington, col. 2, lines 25-30).

9. In regards to claim 15, Reid in view of Etherington teaches a wafer-based independent variable, such as plating current (Etherington, col. 2, lines 16-34).

10. In regards to claim 16-21, Reid discloses the typical bath composition found in copper electroplating as claimed (col. 3, lines 15-22).

11. In regards to claim 22-26, Reid discloses a dependent variable as at least one component of electrochemical deposition medium, including specific additives (abstract, Fig. 2).

12. In regards to claim 27-30, Reid discloses control assembly comprising variable output power and variable flow control of components of electrochemical deposition medium (Fig. 2, col. 3, lines 46-60).

13. In regards to claims 31-32, Reid discloses a wafer in an copper electrochemical deposition (col. 3, lines 15-22).

14. In regards to claims 33-34, Reid in view of Etherington teaches a dependent variable such as plating current (Etherington, col. 2, lines 25-30).

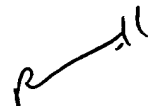
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700